

I. Analyses of the Consequences of Vertical Integration

111. A number of authors have developed formal models to evaluate the effects on social welfare of vertical integration by an access supplier into long distance. Welfare gains can come from two sources. One is the increase in competition that could occur from the addition of another long-distance seller. The other is the effect of adding a long-distance seller that does not pay high access charges but instead pays the actual cost of access.

112. Professors Sibley and Weisman consider the first source.¹² They assume that, prior to entry by the access supplier, there is market power in long distance and price is above cost. Specifically, there is a single monopoly long-distance carrier. When the local carrier enters, the long-distance market becomes perfectly competitive, price falls to marginal cost (including the access fee), and quantity increases, improving consumer welfare. Because entry of the access supplier triggers a move to perfect competition, where no seller earns any profit, the entire motivation for entry by the access seller is the increased volume of access that results from the reduction in the long-distance price.

113. Sibley and Weisman's result turns on a critical assumption. Prior to entry, long distance is a monopoly; after entry, long distance is perfectly competitive. As I will show in the next Part of this declaration, long distance has become substantially competitive today without significant control of long-distance by access suppliers. Apart from cost issues, there is no reason to expect that the presence of access suppliers in the long-distance market would result in lower prices. As I note elsewhere in this declaration, in those instances such as local toll and Connecticut long-distance, access suppliers are invariably high-price sellers of long-distance services.

114. One important issue, considered in the previous section and earlier in this declaration, is the ability of the access supplier to impose cost increases on its long-distance rivals by withdrawing cooperation. Given that long-distance entry by access suppliers is unlikely to affect the price of long distance at all except for cost effects, and the incentive for the access supplier to withdraw cooperation and raise costs, the balance tilts decisively in favor of the existing principle of

¹² Sibley and Weisman, "Competitive Incentives," Sections II and III.

structural separation of access supply and long distance, under current conditions.

J. Cost Shifting from Unregulated to Regulated Businesses

115. The regulation of a partially regulated, partially unregulated firm is a challenge. The firm has an incentive to report costs of its unregulated activities as if they were costs of regulated ones, if regulation has any tendency to reimburse those costs. Two inefficiencies flow from cost shifting of this type: First, the overpricing of regulated local service results in a loss of consumer welfare. Second, if the local carrier faces less than the full social cost of the inputs it uses in long distance, it will use excess inputs. Cost shifting always results in a net loss of social welfare, even if it depresses the price of long distance. In recognition of this problem, the Telecommunications Act requires the local carrier initially to sell long-distance services through a separate subsidiary.

116. When a local carrier uses resources from its local services to provide long-distance services, it has shifted the costs to the disadvantage of the telephone user. Because regulation in almost all areas amounts to at least partial reimbursement of costs, the effect of cost shifting is to subsidize resources for long distance. This remains true even if decision-making is completely integrated between the local and long-distance parts of the local carrier and strictly serves the shareholders' interests. This ability to shift long-distance costs to its local services means a local carrier could remain as a seller in a long-distance market even if it has higher true costs than its rivals. It is economically inefficient for the local carrier to provide output at high cost when the same output could be provided at a lower cost by another long-distance provider.

117. The incumbent local carriers frequently argue that cost shifting is irrelevant to the modern telephone industry because of price caps.¹³ I believe, on the contrary, that cost shifting continues to be a potential source of economic inefficiency and that the proper goal of regulation of the industry should be economic efficiency in the sense of net consumer welfare. On balance, consumers

¹³ See, e.g., *Joint Affidavit of Richard J. Gilbert and John C. Panzar on Behalf of Ameritech Michigan*, filed in CC Docket No. 97-137, at 31-32, April 28, 1997.

will be worse off, and telecommunications markets will be less efficient, if the local carrier shifts substantial costs from long-distance services to regulated activities.

118. I think the conclusion that price-cap regulation eliminates the threat of cost shifting fails to deal with the reality of regulation. Under price-cap regulation of local service rates, regulators must still determine the level of the cap by reference to some cost standard. The incentive for cost shifting remains unless regulators obtain price caps from sources entirely unrelated to the actual costs or profits of the telephone companies they regulate. Even if the regulators set the initial price cap without reference to actual cost, the local carriers still have an incentive to shift costs because regulators are likely to respond to unexpectedly low or high profits in regulated service by raising or lowering the price cap or ending the price cap regulation altogether.

119. The incentive for cost shifting remains unless regulators can regulate prices without reference to the actual costs or profits of the telephone companies they regulate. Under regulation based in any way on cost, even with a long lag, the local carrier has an unambiguous incentive to shift costs because regulators will respond to changes in profits in regulated service by raising or lowering prices.

IV. Competition and Performance in Long Distance

120. Proponents of a policy permitting local telephone companies to control long-distance subsidiaries in their own regions have suggested that the addition of a new carrier would break down high uncompetitive long-distance pricing in the market. In this Part of the declaration, I examine the potential benefits to competition in long distance from control of sellers by local telephone companies. How strong is existing competition? Would the addition of another significant long-distance carrier deliver benefits to the long-distance consumer, putting aside the harm that would be caused if a local phone company controlled the new long-distance carrier?

121. I have carried out a study of competition in the long-distance market using standard economic analysis. I find that the long-distance industry is substantially competitive. The industry's performance has been exceptional since

divestiture in 1984—long-distance carriers have delivered steady improvements in service at continually declining prices.

122. The long-distance market in the United States is served by four larger carriers—AT&T, WorldCom, MCI, and Sprint—together with numerous others who offer services on partial national networks, facilities leased from other owners, or who resell services purchased in bulk from other carriers.¹⁴ In my opinion, the evidence shows strongly that these carriers compete rather than collude. The result of this competition has been benefits to the consumer in the form of substantial reductions in the price of long-distance service as well as numerous technical improvements and the development of new services.

123. The primary evidence in favor of the hypothesis of strong competition and superior performance is the behavior of prices in the long-distance market. Proper measures of price—ones that take appropriate account of the shift toward highly favorable bargain pricing plans—show huge reductions in prices. They also suggest that competition has brought the price of long distance close to the level of cost. The structure of the industry is conducive to strong competition. There are no important barriers to entry. Because there are fluid markets for basic long-distance capacity, entry can take many different forms.

A. Performance of the Long-Distance Industry

124. Increasing competition in the long-distance industry has delivered important benefits to the American economy. Traditionally, long-distance service was available only from AT&T. Regulation prevented other companies from offering long-distance service. During the 1960s and the 1970s, MCI waged a successful battle to obtain the right to offer service in competition with AT&T, but there was still little rivalry in the industry by the early 1980s.

125. Divestiture in 1984 started the transition to competition in long distance. The mid-1980s saw an explosion of service by long-distance carriers other than AT&T. During this time, MCI and Sprint expanded nationwide networks and gained acceptance as alternatives to AT&T. Divestiture was successful at

¹⁴ At this writing, WorldCom and GTE have made proposals to acquire MCI. I have not analyzed the potential effects of either acquisition.

stimulating major new investments with corresponding increases in market shares by new entrants to the long-distance market.

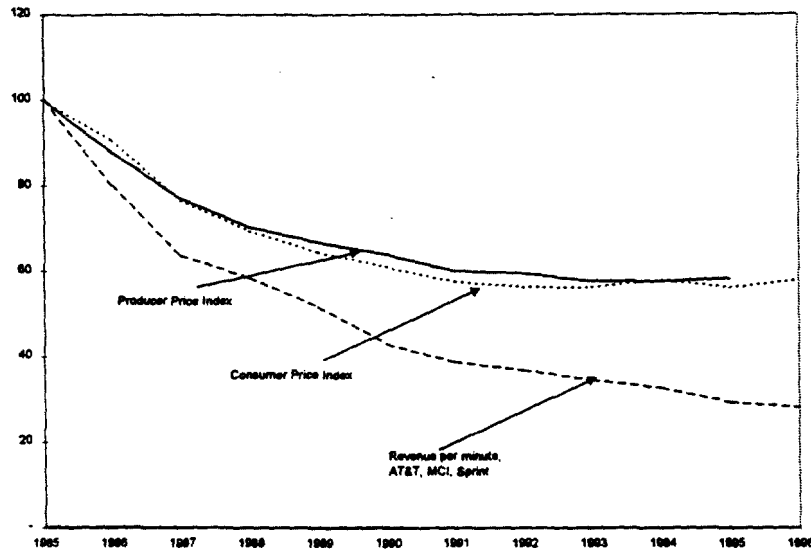
B. Prices for Long Distance

126. The public has gained substantially from this structural transformation of the long-distance industry. The primary indicator of these gains is the sharply declining price of long-distance service. Prior to the introduction of competition in long distance, the price was stable in relation to prices in general. With the advent of competition, particularly with the divestiture of long-distance services from local telephone companies at the beginning of 1984, and the provision of equal access to competing long-distance carriers, the price of long-distance service fell precipitously.

127. In my opinion, the best available way to measure the price of long distance is by revenue per minute, the ratio of toll call revenue (billed by the minute) to the number of billed minutes. Although revenue per minute is not a perfect measure of the price of long distance, it is the best available measure.¹⁵ Figure 1 shows revenue per minute for AT&T, MCI, and Sprint, stated in 1996 dollars, adjusted by the GDP deflator. To avoid mix effects, these calculations exclude international calls. Figure 1 shows that revenue per minute has declined substantially and that the declines are continuing to occur.

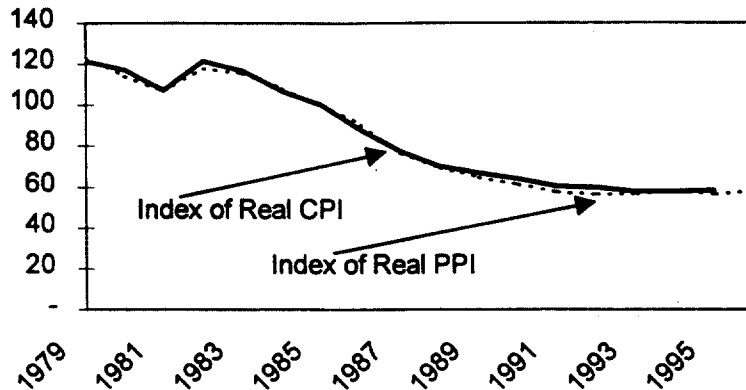
¹⁵ One of the potential problems in revenue per minute as a measure of prices is mix effects—revenue per minute could rise even though each type of call was cheaper per minute because customers were making a larger fraction of expensive calls, such as credit-card calls. I looked at confidential MCI data by detailed product category to determine that mix effects are a minor influence on MCI's revenue per minute; essentially all the decline comes from lower prices for calls and none from changes in the mix of calls. It is entirely reasonable to conclude that mix effects are also a minor influence on revenue per minute industry-wide.

Figure 1. Index of Revenue per Minute, Relative to the General Price Level



128. Over the period from the late 1970s to the present, only the price indices compiled by the U.S. government are available as consistent measures of prices. Figure 2 shows the history of the price of long-distance services as measured by the official price indices of the U.S. government. The indices are, first, the component of the Consumer Price Index (CPI) for interstate toll calls and, second, the component of the Producer Price Index (PPI) for interstate message toll service. Both indices exclude international calls. Figure 1 presents them as ratios to a general price index, the implicit deflator for Gross Domestic Product (GDP).

Figure 2. Government Indices of Long-Distance Prices Relative to the General Price Level



129. The decline in the CPI measure, relative to the GDP deflator, was 33 percent between 1983 and 1987, and the decline in the PPI was 34 percent. The CPI declined by 24 percent between 1987 and 1996, and the PPI declined 24 percent between 1987 and 1995 (the PPI after June 1995 is inconsistent with prior data).

130. Three factors were responsible for the sharp decline in the price of long-distance service relative to the general price level over the past decade: competition made possible by divestiture, improvements in productivity, and declining access charges paid to local telephone companies.

131. Although these data from the Bureau of Labor Statistics (BLS) show a sharp decline in the long-distance prices, they do not present a complete picture of the decline in long-distance prices. The evidence suggests that BLS data understate recent declines in those prices. Construction of price indices for products such as long-distance service presents a serious challenge. For the CPI, the BLS prices a fixed basket of calls placed by households. It applies the standard rates, without considering any more favorable pricing plans such as flat rates. Here, the CPI's long-distance index departs from the standard procedures of the CPI because it is not an index of transaction prices. The long-distance component of the CPI understates price declines that occur when more favorable plans are introduced. In addition, the CPI's procedure for the

introduction of new sellers and new products understates price declines.¹⁶ In light of the extensive use of pricing plans that are far more attractive than the standard rates in the long-distance market since divestiture—for example, nearly 80 percent of MCI's customers use a plan that is cheaper than standard rates—the omission of these factors from the CPI has led to a substantial understatement of price decreases. An FCC document warns users that the CPI (and the PPI) are unreliable measures for long-distance prices: "Price indexes are less reliable when industries are changing rapidly." The FCC document further states that "Because of these sorts of difficulties, measures of average revenues are sometimes used as alternatives to price indexes."¹⁷

C. The Role of Declining Access Charges in Lowering Long-Distance Prices

132. Long-distance carriers pay local telephone companies access charges for carrying long-distance calls from the caller's business or home to the point where the long-distance carrier picks up the call. They pay a second access fee to a local telephone company to deliver the call to its ultimate destination. During the 1980s, the FCC imposed important changes on the structure of access fees—early in the decade, most of the fee was imposed as a per-minute charge on long-distance calls, whereas by the end of the decade, part of the fee had been shifted to a fixed monthly charge per telephone line. These access fees have declined substantially since 1984, but long-distance carriers still pay about 40 percent of their revenues to local telephone companies as access charges.¹⁸ The FCC has recently ordered further reductions in access fees.

¹⁶ A good example is the following: Prior to 1987, the CPI included only AT&T calls. When other carriers were added to the index in 1987, the new index was adjusted so that it had the same value as the old index in 1987. Although the cost of a basket of calls was lower if some of the calls were made on other carriers, the effect was eliminated by a multiplicative adjustment. Hence the consumer benefit from the lower prices of other carriers before 1987 never was recorded in the CPI.

¹⁷ Section 5, *Price Index Limitations for Telephone Services*, FCC Trendline Report, Industry Analysis Group, Common Carrier Bureau, Federal Communications Commission, May 7, 1996.

¹⁸ *Telecom Service - Long Distance*, Merrill Lynch & Co., Global Research & Economics Group, 1996, Table 6.

133. The Bells have frequently argued that long-distance rates have fallen by less than the amount that access charges have fallen. In this section I will show, on the contrary, that long-distance prices have fallen, relative to the general price level, even when access charges are netted out. Competition and productivity growth have been important factors in the improved performance of the long-distance industry over the past decade.

134. The table below shows gross revenue per minute for the three largest carriers on the top line, stated as 1996 dollars per minute. The table also shows the industry average access charge per minute of call, again in 1996 dollars per minute.¹⁹ The average access charge fell from 22 cents per minute in 1985 to nearly 7 cents in 1996 (in 1996 dollars). Revenue per minute after subtracting access costs fell from 30 cents per minute in 1985 to less than 8 cents in 1996 (in 1996 dollars), a decline of 74 percent. Claims that the only reason for the decline in long-distance prices is the declining cost of access are incorrect.

¹⁹ This calculation is based on the assumption that there are two minutes of access per minute of call (approximately one minute on the originating end and one minute on the terminating end). It also adjusts for call setup time and for access by means other than the local switched network.

<i>Year</i>	<i>Revenue per minute, 1996 dollars</i>	<i>Access charge per minute, 1996 dollars</i>	<i>Revenue per minute net of access charges, 1996 dollars</i>
1985	.515	.217	.298
1986	.413	.197	.215
1987	.328	.164	.164
1988	.302	.145	.157
1989	.267	.125	.142
1990	.222	.104	.118
1991	.200	.091	.109
1992	.190	.085	.105
1993	.178	.081	.097
1994	.168	.079	.089
1995	.151	.074	.077
1996	.145	.068	.077

135. The table shows that the fall in the price of long-distance service net of access charges occurred in both the period immediately following divestiture and in more recent years. Although falling access charges were an important factor in the substantial decline in the price of long distance over the period, other factors were also significant, reflecting the successful performance of the competitive long-distance industry in the United States.

136. Jim Lande of the Industry Analysis Division, Common Carrier Bureau of the FCC, has made calculations of revenue per minute for interstate direct dialed calls.²⁰ His results are:

<i>Year</i>	<i>Revenue per minute, net of access charges, for a direct dialed call in 1996 dollars</i>
1992	\$0.086
1993	0.083
1994	0.078
1995	0.074

Net of access charges, revenue per minute in 1996 dollars fell by 18 percent over the three years from 1992 to 1995. Lande's results strongly confirm the hypothesis that declining access charges were only one of the factors leading to the declining price of long distance.²¹ The growing efficiency and improving competitive performance of the industry also made a large contribution, as is revealed by the data calculated net of access charges.

137. Most long-distance carriers sell their products under various pricing plans. Among these is a higher rate called the standard rate. This rate is charged to a customer who signs up for service without asking about the rates that are available and without being attracted by the promotion of a better rate. Standard rates are in the range of 28 cents per minute during the day and 18 cents in the evening; they are also slightly differentiated by distance. These rates have the same role that "full fares" have in the airline business—they are paid for a small fraction of the total volume of sales by people who cannot or will not arrange their lives to receive much better prices. The standard rates of AT&T, MCI, and Sprint are quite similar and tend to move together. They rose

²⁰ "Telecommunications Industry Revenue: TRS Fund Worksheet Data," December 1996.

²¹ Differences between Dr. Lande's calculations of revenue per minute and mine include the following: (i) he uses only DDD calls; I include all calls; (ii) he uses only interstate data; I use interstate and intrastate data; (iii) he uses actual minutes; I use billed minutes; (iv) he uses average access charges; I use marginal access charges; (v) he includes all carriers, I include only AT&T, MCI, and Sprint.

somewhat in the past few years, most recently in November 1996, and then fell in July 1997, when there was a decline in access charges.

138. Most long-distance service is purchased at far better prices than the standard rate, just as a large fraction of all airline travel is at fares that are far below the full fare. In the airline market, better fares are available in two ways: First, businesses negotiate special fares directly with airlines. Second, for individual travelers, airlines quote highly advantageous fares for travelers who take the trouble to make their arrangements in advance. Full fare transcontinental travel costs about 35 cents a mile whereas the cheaper fares are around 9 cents per mile. Similarly, the long-distance caller who seeks out a good deal can make calls across the country for 10 cents a minute. And the price paid by businesses can be pushed down even more if a way can be found to avoid the access charges of around 5 cents that would otherwise place an absolute floor on long-distance prices.

139. Here is a list of some of the deals that long-distance carriers currently offer for interstate calling for residential customers.

<i>Carrier</i>	<i>Name of plan</i>	<i>Terms</i>
AT&T	One Rate Plus	10 cents per minute at any time, \$4.95 per month
MCI	MCI One	12 cents per minute at any time for purchases over \$15 per month, 15 cents per minute for first \$5, 5 cents on Sundays, \$5 minimum.
MCI	MCI One Savings	10 cents per minute evenings and Saturdays, 5 cents on Sundays, 25 cents per minute daytime, \$5 minimum.
Sprint	Sprint Sense Day Plan	15 cents per minute at any time, no fee, no minimum purchase
WorldCom	Home Advantage Easy Plan	13.9 cents per minute at any time.
Wiltel		10.9 cents per minute at any time, no fee, no minimum
Unidial		9.9 cents per minute, no fee, no minimum
Telco Communications	Long-Distance Wholesale Club	9.5 cents per minute plus \$4.95 per month
VarTec Telecom	Dime Line	10 cents per minute, 3 minute minimum, \$5 per month
Frontier		10.9 cents per minute at any time, no fee, no minimum

Sources: Carriers and *Wall Street Journal*, "Coy Telecom Giant Woos AT&T's Customers," April 15, 1997, p. B1.

These rates are substantially lower than rates available even a year ago.

140. Almost 80 percent of MCI's customers use plans other than the standard rate.²² Many of the advantageous plans described above are available to all

²² Based on MCI data. See elaboration in the next section.

users, regardless of their level of usage. Moreover, the availability of these plans is a frequent discussion point in the media. Some of the lowest rates are available without presubscription—you can take advantage of the 9.5 cents per minute rate from the Long-Distance Wholesale Club by dialing their access code, 10297, without any preliminary arrangement.

D. Prices Paid by Low-Volume Long-Distance Customers

141. The Bells have argued that the existence of low-price plans creates an incorrect impression of competition because most customers do not receive the benefits from some of these plans. Some of the flat-rate bargain plans that provide the most attractive residential prices today are not volume based. These low-price plans are open to all users. Others have relatively low fixed costs of \$3 to \$5 or similar minimum purchase requirements.

142. In fact, most residential customers take advantage of flat-rate low-price plans. I have studied data from MCI on the distribution of customers and revenue across pricing plans, for residential customers. About 22 percent of MCI's residential customers pay the standard rates—the remaining 78 percent use plans with lower rates, some of which depend on volume. Not surprisingly, those using the standard rate tend to spend little on long distance. In the month I examined, 12 percent of MCI's residential revenue came from customers using the standard rate. The remaining 88 percent of MCI's residential business was with customers using more advantageous price plans. Of those that pay standard rates, 46 percent have bills less than \$1.50 per month in an average month.

143. The Bells' experts often cite contrary data from PNR and Associates that 65 percent of residential customers pay standard prices rather than using lower-price plans.²³ First, a substantial number of these customers, perhaps as many as one-fourth, do not subscribe to a low-price plan because they have no toll usage.²⁴ More importantly, the PNR sample is badly biased, through its construction, in favor of smaller users.

²³ *Declaration on Behalf of BellSouth by Richard L. Schmalensee*, "BellSouth's Prospects for Success in the InterLATA Market," filed in CC Docket No. 97-208, at 7, August 18, 1997.

²⁴ PNR and Associates provided MCI with promotional documents for a program known as Bill Harvest II. The discussion in this paragraph and the next are based on these documents.

144. PNR wrote to 25,000 households requesting copies of their local telephone bills, long-distance bills, cable TV bills, and cellular bills. PNR paid \$5 to each responding household. PNR received telephone bills from 8,731 households, for a response rate of about 35 percent.²⁵ Whenever a survey is performed, an analysis of non-respondents must be done to insure that the respondents are not biased, particularly when the response rate is this low. No such study has been done to validate the PNR sample, to my knowledge. There is a presumption that the response rate will be highest in lower-income households, to whom the \$5 payment is more significant. No conclusion about long-distance customers in general can possibly be drawn in view of the bias.

145. The bias from selective response appears to be serious. MCI has carried out a comparison of data from PNR on purchases from MCI with similar data on purchases by all of MCI's customers. According to PNR, about 54 percent of MCI residential customers spent \$10 or less on long distance. In the MCI data, the corresponding fraction is only 32. Plainly, the highest usage customers were under-represented in the sample.

E. Issues in the Measurement of Cost

146. Economists generally agree that the relation between price and marginal cost is useful for understanding issues about competition and performance. But making valid inferences about industry performance from the relation of price to marginal cost is a challenge. Although the textbook perfectly competitive seller sets its marginal cost equal to price, it is difficult to relate departures from that equality into a suitable measure of performance. An industry could have marginal cost below price but still be workably competitive. In such an industry, the potential entrant would not perceive profit. The hardware costs of the network can be measured, but appear to be a small part of the total cost. Access charges are the single largest component of cost and are easy to measure. The remaining 5 cents or so of cost are in areas such as customer service, billing, and other office-based activities that are hard to measure on a marginal basis.

147. One approach to measuring cost is to look at the very best prices charged for different long-distance services. Long-distance transport sells for about 1.5 cents

²⁵ *Ibid.*, PNR information about Bill Harvesting II.

per minute, which is in line with estimates of network costs. It appears that the best available price for switched long-distance for offices or homes is a little below 10 cents per incremental minute, about 4 cents above access charges.

148. Despite the difficulties in measuring marginal cost accurately, I believe that the price-cost margin has declined substantially in the long-distance industry in the past decade. This decline is consistent with increasing competition. The decline has reached the point that the industry today is not far from the limit where price just covers marginal cost.

F. Cost Differentials among Customers and Corresponding Price Differentials

149. It is well known that customers with higher volumes pay less per minute for long-distance service. Some economists have been concerned that these price differences arise from the type of price discrimination that occurs when sellers have market power. Alternatively, the price differences could reflect cost differences. Pure price discrimination, not based on cost differentials, will not exist in a textbook perfectly competitive market. Price differences based on cost differences will occur even in perfect competition. In the long-distance industry, there is good evidence that favorable prices promoted mainly to high-volume customers (a common form of price differential in the industry) are the result of cost differences rather than pure price discrimination.

150. The costs that a long-distance carrier incurs to serve an additional customer for an additional month are substantial. A major component is the cost of billing. According to MCI, the cost of billing a customer with a single long-distance call is about \$.48 per month (based on MCI's contracts with local carriers). Another major component of the cost during the period under study of an additional customer is the charge for the Universal Service Fund. This charge is about \$.50 per line per month. Thus, an additional customer costs about \$.98 per month.

151. As I have noted earlier, there has recently been a shift toward simplified flat-rate long-distance plans and away from explicit quantity discounts, though some flat-rate plans have minimum charges. Higher-usage customers are more likely to take the trouble to seek out the best flat-rate plans. Long-distance carriers are likely to target known large users for their flat-rate promotions, because it is not worth the effort of contacting the low-usage customer.

152. If the higher rates per minute paid by the smallest customers are the result of pure price discrimination and do not reflect differences in costs, including the promotional costs of signing up the customers, then there would be an important arbitrage opportunity for resellers. Because a reseller can buy service cheaply at high-volume low prices and resell the services at higher prices to small customers, the reseller makes substantial profits when prices depart from costs. As I have discussed, there is an active market for resold service—there are at least 260 resellers of long-distance service. I find it unlikely that there are large profits available to resellers that they have failed to pursue, despite the vitality of the reselling business. A more reasonable explanation is that there is an additional cost to recruit and serve each customer. As a result, carriers offer low prices to large customers, as would be expected under competition, to reflect the recruiting cost and the fixed monthly cost of serving a customer.

G. Technical Improvements and New Services since Divestiture

153. Even the occasional user of long distance in the United States is aware of the tremendous improvement in the quality of service in the past decade. Background noise, cross-talk, echoes, and dropped calls have essentially disappeared from long-distance calls. The usefulness of one minute of telephone conversation has risen over the period at the same time that the cost of that minute has fallen dramatically. Fiber optics account for much of the improvement. State of the art fiber network has advanced from under a billion bits per second in 1986 (capacity for 10,000 simultaneous phone calls) to 1.76 billion bits per second in synchronous optical networks today. In addition, the new dispersion-shifted fiber technology requires half as many regenerators per mile in the network. These advances in long-distance technology have lowered costs and improved reliability. The carriers that took advantage of the opportunities in long distance as the AT&T monopoly was broken up—MCI chief among them—have been leaders in advanced fiber technology.

H. Structure and Competition

154. The data reviewed earlier in this section effectively demonstrate the benefits that consumers have received from the development of a competitive long-distance market. In addition, the structural factors often considered by economists in judging the likelihood of the existence and continuation of

competition support the conclusion that vigorous competition is serving the interests of the long-distance consumer. These factors include the concentration of sellers, trends in market shares, the ability of rivals to observe prices, barriers to entry, profitability, and returns to scale.

1. Concentration

155. The domestic long-distance industry in the United States has the following competitive structure: There are four carriers with national networks (AT&T, MCI, Sprint, and WorldCom). Their current market shares are roughly 54 percent, 18 percent, 9 percent, and 5 percent, respectively.²⁶ There are at least 20 other carriers with annual revenues over \$100 million, including Cable & Wireless and Allnet. In addition, numerous other carriers have smaller roles in the industry, based on their own facilities, capacity leased from other owners, and on reselling network services from other carriers. The FCC reports that there are 390 firms identifying themselves as long-distance carriers or resellers of interstate services.²⁷ The sellers other than the top four now account for 15 percent of the market.

156. AT&T's market share of just over half does not necessarily indicate a serious deficiency in competition. In any industry, but particularly in an industry where one seller has had an historical head start, one must examine a broader set of information than market share to reach conclusions about the state of competition in a market. In particular, such an examination should consider trends in market shares, barriers to entry, and the prospective profits of a new entrant. It should also consider direct evidence on price-cost margins, as I discussed earlier.

157. WorldCom is now the fourth largest long-distance carrier with nearly 4.1 million customers as of 1995. It has grown both by building its own facilities and by acquisition of other carriers. In January 1995 WorldCom's predecessor, LDDS, acquired WilTel, the sixth largest carrier. Recently, WorldCom acquired Brooks Fiber, a company that provides access services to businesses in several

²⁶*Long Distance Market Share, Second Quarter 1996*, Table 6, Quarterly Toll Revenues Reported to Shareholders, Industrial Analysis Division, Common Carrier Bureau, Federal Communications Commission, September 1996.

²⁷ *Ibid.*, Table 1.

cities. Currently, WorldCom has about a 5 percent share of the long-distance market. Allnet is the fifth largest carrier with 1.5 million customers as of 1995. Allnet has achieved its growth as a reseller. In 1995 Frontier Communications acquired Allnet's parent. Their combined market share is about two percent of the market. These two firms are just two of the many players who are aggressively challenging AT&T, MCI, and Sprint. At present, there are 130 facilities-based long-distance carriers and 260 resellers who are actively recruiting customers.

158. The market contains many aggressive, successful carriers who have every intention of taking as much business as they can away from the larger carriers. Executives in the industry who are constantly fighting to retain customers solicited by WorldCom, Allnet, and other aggressive sellers would be amused at a portrayal of their industry as a comfortable club with just three members who have agreed not to poach on each other's territories. These other carriers could expand rapidly if competition among the larger carriers were inadequate and left prices above competitive levels. Further, the smaller carriers are increasing competition in the market through consolidations that result in a number of highly successful entities such as Frontier Communications, the fifth-largest carrier. A recent example is the merger announced on June 6, 1997, between Excel and Telco Communications Group, Inc., to create what will be the sixth-largest carrier.

159. The smaller carriers thrive on the availability of fiber capacity in the lease market. Several carriers, such as WorldCom, have an important business in building and leasing fiber capacity to other long-distance carriers. Lease customers include the major carriers as well as the smaller interexchange carriers.

160. Aggressive rivalry from the other larger carriers—MCI, Sprint, and WorldCom—together with the presence of numerous smaller carriers now accounting for 15 percent of the market has been effective in promoting competition in the long-distance market even though AT&T remains the largest long-distance carrier.

2. Trends in Market Shares

161. The changes in and current levels of market share of the long-distance carriers reveal a vigorously competitive market. Thirteen years have passed

since divestiture opened the long-distance market. AT&T still has a majority share, but it continues to lose share—from 65 percent in 1990 to 53 percent in 1995—to all of its rivals. What market share AT&T still has, it retained only by competitive response to the aggressive attempts of its rivals to lure away its business. MCI and Sprint, through combative pricing and pursuit of customers, have raised their combined market shares, to 28 percent as of 1995, up from 24 percent in 1990. The rise in MCI's and Sprint's market shares accounts for about a third of AT&T's loss of share. The remainder—two-thirds—of AT&T's loss was the gain of smaller, but fast-growing and successful, carriers.

162. Measured by economists' favored index of market concentration, the Herfindahl-Hirschman Index (HHI), long-distance service has become ever more competitive with the passage of time. The HHI for 1996 was at a level only half of what it was in 1987. With a continuation of the downward trend observed continuously since divestiture, the long-distance industry will enter the range of a relatively unconcentrated industry within the next 10 years or so.

3. Communication of Prices among Rivals

163. Economic analysis of the relation between competition and rivals' observation of price has stressed that the central question is whether a firm can take its rivals by surprise by offering terms to prospective customers that the rivals cannot match immediately. If a smaller firm can attract a significant number of customers before its rivals respond, competition is more effective in lowering prices because the firm can expand relative to its larger rival or rivals. Even a one-day advantage can be crucial—in the airline business, one carrier can run a media blitz for a special low-price offer for a single day and book a large amount of business, even if the other carriers respond with their own blitzes the next day. In the residential long-distance business, one important tool is the signup bonus. The larger carriers target their rivals periodically with mass mailings offering bonuses—the rivals learn about the tactic only after it occurs. Promotional bargain offerings come at such a fast and furious pace that rivals cannot respond quickly enough to erase the temporary advantage that each offer provides to the carrier making the offer.

164. The observability of prices by rivals is a significant issue in markets with high barriers to entry and small numbers of firms. But in the long-distance market, with hundreds of sellers, a smaller seller need not fear that its larger rivals will respond to the prices it sets. The small firm can publicize its prices as

widely as it chooses. Smaller firms find viable niches in the market, knowing that larger rivals would sacrifice too much profit from their existing customers if they matched the terms that were being offered by the smaller firms to a few of its customers. The combined effect of the hundred or so smaller carriers, each nibbling at the shares of the larger carriers, is to enforce a high level of competition in the market in general.

4. Barriers to Entry

165. Although market share information is useful, it is important to examine a broader set of information than just market shares to reach conclusions about the state of competition in a market. In particular, the examination should consider barriers to entry and the prospective profits of a new entrant. In a non-competitive industry with conspicuous barriers to entry, a new firm would make high profits if it could overcome the barriers. In long distance, regulation created an absolute barrier to entry until the 1970s. Prospective entrants knew they could make substantial profits if they were allowed to compete with AT&T, and they were willing to fight hard for the right.

166. The role of barriers to entry is prominent in all discussions of structural determinants of competition. If a small number of sellers are isolated from further competition by high barriers to entry, the likelihood of implicit collusion is higher. In my opinion, however, the barriers to entry in the long-distance business are relatively low, so actual and prospective entry keep the market competitive.

167. Potential barriers to entry in the long-distance industry include the cost of creating a network of sufficient size to compete effectively with existing carriers and the cost of attracting customers from those carriers. One form of entry would call for a completely new network of transmission facilities at the national level. This form would cost billions of dollars and would likely be unprofitable. AT&T estimates that it has spent nearly \$3 billion on its fiber network in 1993 excluding electronic or optoelectronic equipment.²⁸ It is precisely the favorable state of competition that makes such entry unprofitable. If the existing long-distance carriers were charging prices that generated excessive profits and were

²⁸ Jonathan Kraushaar, *Fiber Deployment Update*, Industry Analysis Division, Common Carrier Bureau, Federal Communications Commission, April 1993.

providing substandard service, the prospective profits to full-scale entry would be enough to induce the necessary large investment, exactly because there are no artificial barriers to entry in the long-distance market.

168. Most importantly, provision of national service does not require the ownership of a full national network. If uncompetitive behavior among the larger carriers created excessive prices, the resulting profit opportunity would be seized by operators who already know how to assemble an effective national service from components available today in the lease market.

169. Even if prevailing prices generated only moderate excess profits, a different form of entry at the national level could still occur. A national network could be created from a combination of investment and leasing of existing fiber capacity, a successful strategy pursued by WorldCom and Allnet. Also, entry is possible on a smaller scale by constructing a smaller network and by reselling the services of other carriers. AT&T has more than 50 percent of its fiber dark while Sprint has nearly a quarter still dark.²⁹ There is an active lease market for fiber transmission facilities to support this type of competition. Again, if failure of competition among the larger players created high prices and poor service, the smaller players would expand to take advantage of the profit opportunities that such a situation would create. The technology of long-distance telephone service is well suited to competitive discipline because successful rivals can remain permanently viable.

170. Some economists have concluded that the basic transmission technology of modern long-distance service—fiber optics—has high fixed and low variable costs. In other words, according to this view, a long-distance carrier must make a large investment to be in business in the first place, but can then increase its volume of business without adding much capacity or incurring additional costs that rise with volume. But this view fails to consider the flexibility of long-distance operations. In particular, the ownership of facilities and the provision of long-distance service are not linked in the way that the analysis assumes. The United States has an active market in leased communications facilities that supports a much more flexible industry with essentially constant returns to scale. The market easily supports active competition among many long-distance carriers.

²⁹ *Ibid.*

171. Analyses of barriers to entry have stressed the importance of sunk costs, rather than the total costs of entry. A sunk cost is one that cannot be recovered if entry is not successful. Few of the costs of transmission capacity in the long-distance business are sunk, because there is an active market where an unsuccessful entrant in retail long distance could sell or lease facilities to other retail sellers. In this respect, the long-distance market is quite different from the local market—in that market, the investment of an unsuccessful entrant may have little resale value, so sunk costs are a more important barrier to entry in local service than in long distance.

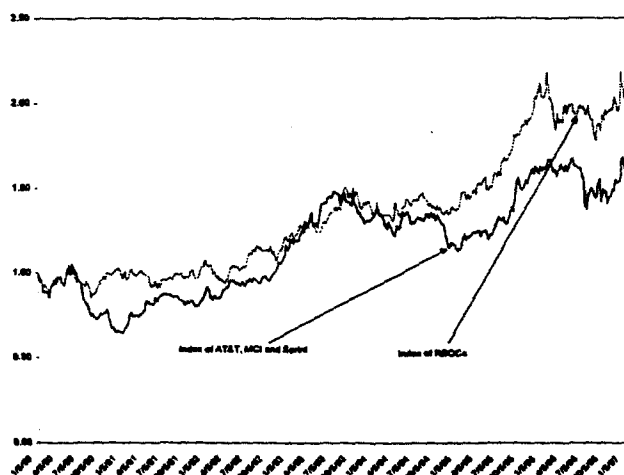
5. Profits

172. If existing long-distance carriers were charging prices that generated excessive profits and were providing substandard service, the profits of a prospective entrant would be enough to induce the necessary investment for full-scale entry because there are no artificial barriers to entry in the long-distance market. Even if prevailing prices generated only moderate excess profits, a different form of entry at the national level, or entry on a regional level, could still occur. Today, 13 years after pre-divestiture barriers to entry were removed, the entry of around 390 carriers of different sizes has exhausted the profits from entry. As a result, the long-distance market is substantially competitive, and the ease of entry ensures that the market will remain competitive in the future.

173. Where competition is weak, firms can overprice their products and enjoy abnormal profits from their market power. One way to consider profitability is to study data on stock market values. The market places a value on the future stream of profit. Figure 3 compares an index of AT&T, MCI, and Sprint adjusted stock prices to a similar index of adjusted stock prices for the Bell Operating Companies. The adjusted stock price is the value of an initial investment of \$1 with dividends continuously reinvested in the same stock. Each line in Figure 3 is the value-weighted average of the underlying individual stocks. The figure shows that, since the beginning of the decade, the Bells have outperformed AT&T, MCI, and Sprint in the stock market.³⁰

³⁰ Data were compiled from TradeLine and represent monthly stock prices adjusted for capital changes and cash and non-cash dividends. An index, beginning 1/1/90, was constructed for each company. Then indices for the long-distance carriers and the RBOCs were constructed using market values as of January 20, 1997.

Figure 3. Adjusted Stock Prices for Long-Distance Carriers and Bells



174. Another way to see how the stock market views competition in the telephone industry is to compare stock-market values to the book values of assets. Almost all firms trade well above book value, because of intangible assets not included in their accounts, but firms with market power are valued even higher because of the capital value of the extra profits associated with market power. Here are recent data on market to book value ratios for long-distance carriers and local telephone companies:

<i>Company</i>	<i>Ratio of Market to Book Value</i>
AT&T	2.7
MCI	2.4
Sprint	1.8
WorldCom	8.0
Ameritech	4.4
Bell Atlantic	3.6
BellSouth	3.2
Nynex	3.0
Pacific Telesis	6.2
SBC	4.6
US West	4.3
SNET	5.3

Source: Morningstar StockTools Database

The only long-distance carrier with a lofty market value in relation to book value is WorldCom, not usually identified as a member of the comfortable long-distance oligopoly. AT&T, MCI, and Sprint—the usual members of that group—are at the bottom. The stars, apart from WorldCom, are Pacific Telesis and SNET.

175. If, as some economists have concluded, the long-distance industry earns abnormal profit from the market power that results from limited competition, then the profits of the established sellers should exceed the profits of the would-be rivals that are locked out of the market. A comparison of AT&T to WorldCom suggests just the opposite. The stock market value of AT&T is slightly over \$1 of value per dollar of revenue. WorldCom commands over \$2 of value per dollar of revenue.³¹ The stock market believes that AT&T's position is likely to continue to wither compared to other sellers such as WorldCom.

6. Returns to Scale

176. Competition cannot flourish in an industry where the technology has important returns to scale. When large scale brings lower cost, one firm will dominate and its cost advantage will prevent effective competition from smaller rivals. All the evidence suggests the absence of increasing returns in the long-distance market. AT&T is approximately three times as large as MCI. Under returns to scale, AT&T should have substantially lower costs per minute of service and thus higher profits. But, in fact, AT&T and MCI are about equally profitable. Further, many carriers exist in the market that are much smaller than MCI, and these small carriers are not only viable, but profitable and growing.

I. Conclusion on Competition and Collusion

177. The United States has a vibrant, successful long-distance industry. Since competition was introduced to the long-distance market, there has been a large and continuing flow of technological innovations. The performance of the industry in the past decade has been a clear success, with substantial declines in prices relative to other products and the rapid development and dissemination of

³¹ Morningstar StockTools Database.